September 24, 2020

Mr. Richard Jacobson
Environmental Protection Officer
Town of Darien
2 Renshaw Road
Darien, CT 06820

Re: Roemer Residence – 49 Birch Road, Darien, CT

Dear Mr. Jacobson:

The following is offered in response to review comments prepared by Mr. Joseph Canas, P.E. of Tighe & Bond, September 2, 2020, regarding the above referenced property.

A. General Comments:
   1. We are having a conversation with the owner/client to see if they are willing to construct the pool house at this time
   2. Vertical datum note was added to the site plan
   3. Limit of disturbance within the area of the wetlands has been added to the site plan.
   4. The area for relocating the playscape has been shown on the plan.
   5. The proposed force main is shown connecting to the sanitary sewer lateral servicing this property. The water service line to the proposed pool house has been shown and connecting to the water service after the water meter.
   6. Noted.

B. Stormwater Management
   1. The post development watershed area has been revised. Both pre and post development watershed areas are the same. The hydrology calculations have been revised accordingly. Please see the attached hydrology calculations.
   2. Watershed map is attached.
   3. Due to the revision to the post development watershed area the peak rate of runoff for the 50 year storm event is less than the pre development peak rate of runoff for the 50 year storm event.
   4. The deep test hole was mislabeled; it has been corrected on the site plan.
   5. Water quality volume calculations have been provided. Please see the attached calculations. The detention basin was revised accordingly. The attached hydrology calculations reflect the changes to the detention basin.
   6. a. See the attached worksheets for the Temporary Hydraulic Facilities. Along with the calculation for the inlet control for the temporary brook crossing.
      b. See the detail of the temporary brook crossing.
      c. The typical utility brook crossing detail has been revised to show the underground utilities to the pool house.
      d. An area has been shown for the temporary storage of the existing wooden bridge during construction.

7. The junction box detail is an open bottom and does not have a concrete footing.

C. Sediment and Erosion Control
   1. Silt fence with staked haybales have been moved to follow the wetlands line and run along the south side of the construction access.
   2. Staked haybales have been added to both sides of the brook on the construction access and a note was added to the site plan
   3. a. The topsoil stockpile on the east side of the proposed pool has been revised. It has been estimated that it has the capacity to handle 763 cubic feet of topsoil. A second topsoil stockpile has been added on the west side of the proposed pool. It has been estimated that is has the capacity to handle 763 cubic feet of topsoil. We estimated that there will be 1461 cubic feet of topsoil needed to be spread over the disturbed area once construction is completed on the pool and pool house.
      b. The dewatering detail has been revised.
      c. A typical section of a sump pit protection detail was added to the detail sheet.

We trust that we satisfactorily addressed the comments from Mr. Canas, PE, dated September 2, 2020.

Very Truly Yours,
DiVesta Civil Engineering Associates, Inc.

Douglas DiVesta

Douglas DiVesta, PE
President

DD/dd
13-038 – ltr Jacobson

Enc.

CC: E. Roemer
J. Canas, PE

Roemer Residence
49 Birch Road
Darien, CT
09/15/20

Water Quality Volume Calculations

Water Quality Volume (WQV) = ((1") (R) (A)) / 12
Where:
A = total area in square feet
R = 0.05 + 0.009 (I)
I = percent impervious cover

Proposed Pool, Pool Patio, Pool House: Available Storage = 113 cu-ft @ elev 129.15
A = 4284 sf
I = 1270 sf/4284 sf = 29.5%

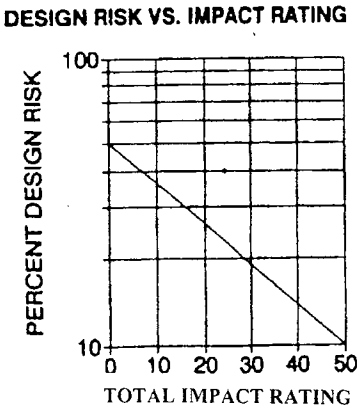
R = 0.05 + 0.009 (29.5%)
R = 0.315

WQV = ((1") (R) (A)) / 12
WQV = ((1") (0.315) (4284 sf)) / 12
WQV = 112.4 cu-ft (required)

IMPACT RATING TABLE

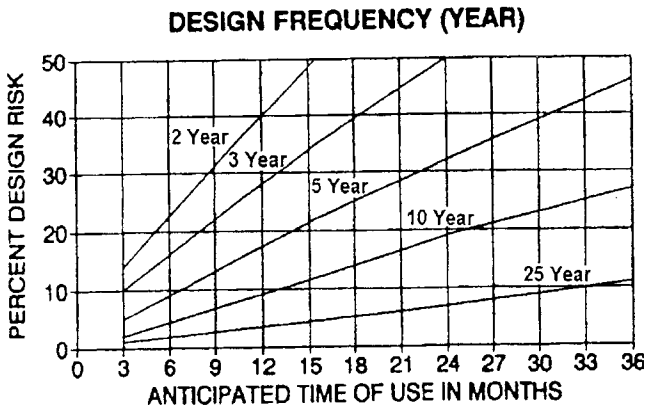
Loss of Life Rating (See Instructions)=	1
Property Damage Rating (See Instructions) =	1
Traffic Interruption Rating =	1
Detour Length Rating =	1
Height Above Streambed Rating =	1
Drainage Area Rating =	.12
Average Daily Traffic Rating =	1
Total Impact Rating = (sum of the above) =	6.12

Step 2: Determine risk percentage



Percent Design Risk = 70 %

Step 3: Determine Temporary Design Frequency



(for temporary facility)

Design Frequency = 2 **years**

Step 4: Determine Temporary Design Discharge

A. If sufficient discharges have been developed either by the designer or a Flood Insurance Study, then the Temporary Design Discharge should be taken either directly or from a frequency curve plot of the data, based on the design frequency determined in Step 3. Enter the Temporary Design Discharge below. *If Discharge – Frequency information is unavailable, proceed to Step 4 B.*

Temporary Design Discharge = _____ **m^3/s (** **cfs)**

Appendix F – Hydrology for Temporary Facilities

Step 1: Determine Impact Ratings

The following selection factors are rated considering their severity as 1, 2, or 3 for low, medium or high conditions.

Potential Loss of Life - If inhabited structures, permanent or temporary, can be inundated or are in the path of a flood wave caused by an embankment failure, then this item will have a multiple of 15 applied. If no possibility of the above exists, then loss of life will be the same as the severity used for the A.D.T.

Property Damages - Private and public structures (houses, commercial, or manufacturing); appurtenances such as sewage treatment and water supply; utility structures either above or below ground, are to have a multiple of 10 applied. Active cropland, parking lots, recreational areas are to have a multiple of 5 applied. All other areas shall use the severity determined by site conditions.

Traffic Interruption - Includes consideration for emergency supplies and rescue; delays; alternate routes; busses; etc. Short duration flooding of a low volume roadway might be acceptable. If the duration of flooding is long (more than a day), and there is a nearby good quality alternate route, then the flooding of a higher volume highway might also be acceptable. The severity of this component is determined by the detour length multiplied by the average daily traffic projected for bi-directional travel.

Detour Length - The length in kilometers (miles) of an emergency detour by other roads should the temporary facility fail.

Height Above Streambed - The difference in elevation in meters (feet) between the traveled roadway and the bed of the waterway.

Drainage Area - The total area contributing runoff to the temporary facility, in km^2 (mi^2).

Average Daily Traffic - The average amount of vehicles traveling bi-directional through the area in a 24-h period.

RATING SELECTION

Factor	Rating		
	1	2	3
Loss of Life	See Instructions		
Property Damage	See Instructions		
Traffic Interruptions	< 2000	2000-4000	> 4000
Detour Length, km (mi)	< 8 (< 5)	8-16 (5-10)	> 16 (> 10)
Height Above Streambed, m (ft)	< 3 (< 10)	3-6 (10-20)	> 6 (> 20)
Drainage Area, km^2 (mi^2)	< 2.6 (< 1)	2.6-26.0 (1-10)	> 26.0 (> 10)
Rural ADT	< 400	400-1500	> 1500
Suburban ADT	< 750	750-1500	> 1500
Urban ADT	< 1500	1500-3000	> 3000

B. Use only when Discharge – Frequency information is unavailable

(1) Determine Multiplier Ratio

Year	Multiplier	Year	Multiplier
2.0	0.8	10.0	1.9
3.0	1.2	25.0	2.7
5.0	1.4		

(2) Compute the Temporary Design Discharge from the following equations

Multiplier .8 × 0.27 ($Q_{50\ yr.}$ 33.0) = _____ m^3/s (6.7 cfs)

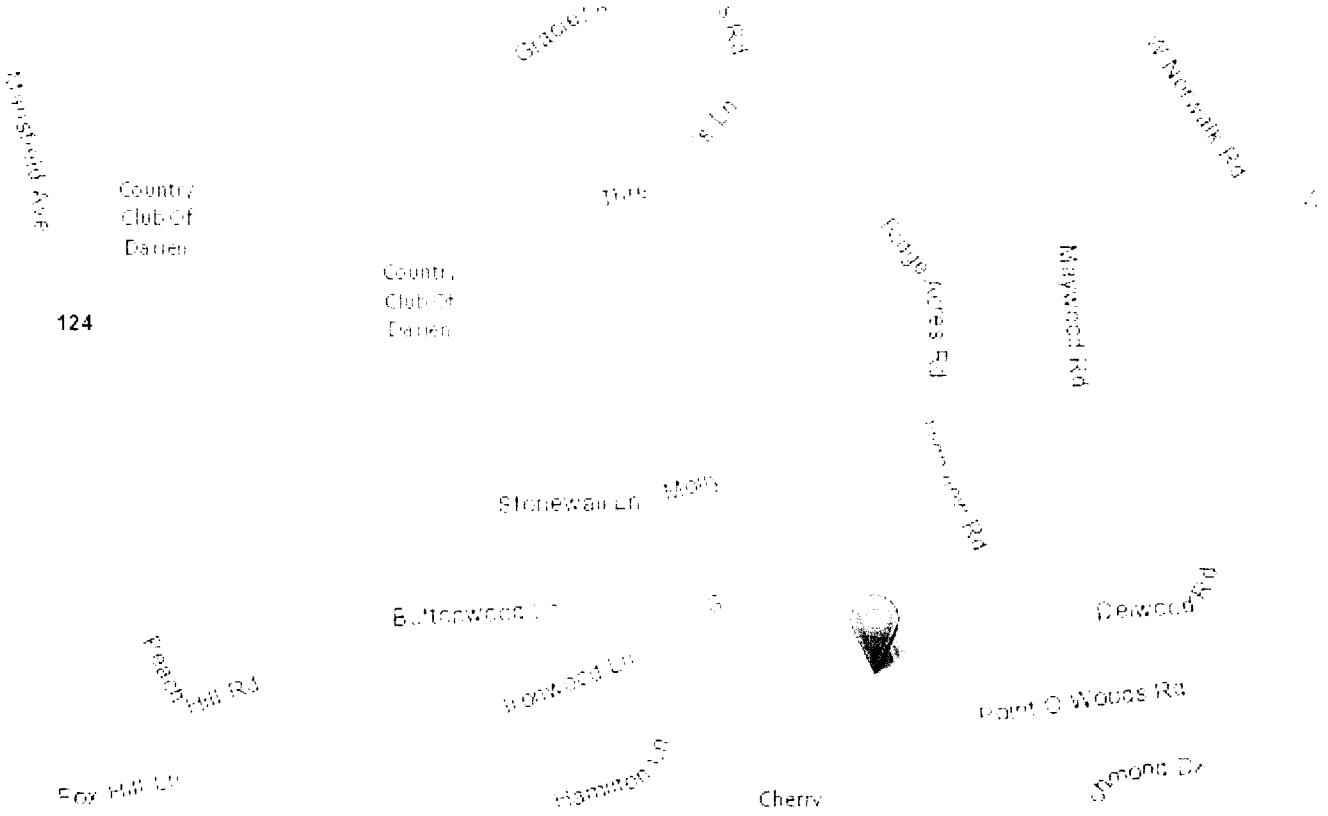
Multiplier .8 × 0.20 ($Q_{100\ yr.}$ 47) = _____ m^3/s (8.0 cfs)

(3) Select the higher of the two discharges computed in Step 4B-(2). Enter discharge below.

Temporary Design Discharge = _____ m^3/s (8.0 cfs)

StreamStats Report

Region ID: CT
Workspace ID: CT20200917181724347000
Clicked Point (Latitude, Longitude): 41.09328, -73.46422
Time: 2020-09-17 14:17:43 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.12	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index		inches
ELEV	Mean Basin Elevation		feet
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years		inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years		inches

Parameter Code	Parameter Description	Value	Unit
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	6.4	inches
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	7.2	inches

General Disclaimers

Parameter values have been edited, computed flows may not apply.

Peak-Flow Statistics Parameters[Statewide Multiparameter]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.12	square miles	1.69	715
I24H2Y	24 Hour 2 Year Precipitation		inches	2.95	3.82
ELEV	Mean Basin Elevation		feet	169	1310
I24H10Y	24 Hour 10 Year Precipitation		inches	4.15	5.53
I24H25Y	24 Hour 25 Year Precipitation		inches	4.93	7
I24H50Y	24 Hour 50 Year Precipitation	6.4	inches	5.62	8.36
I24H100Y	24 Hour 100 Year Precipitation	7.2	inches	6.41	9.99

Peak-Flow Statistics Flow Report[Statewide Multiparameter]

Statistic	Value	Unit

Peak-Flow Statistics Citations

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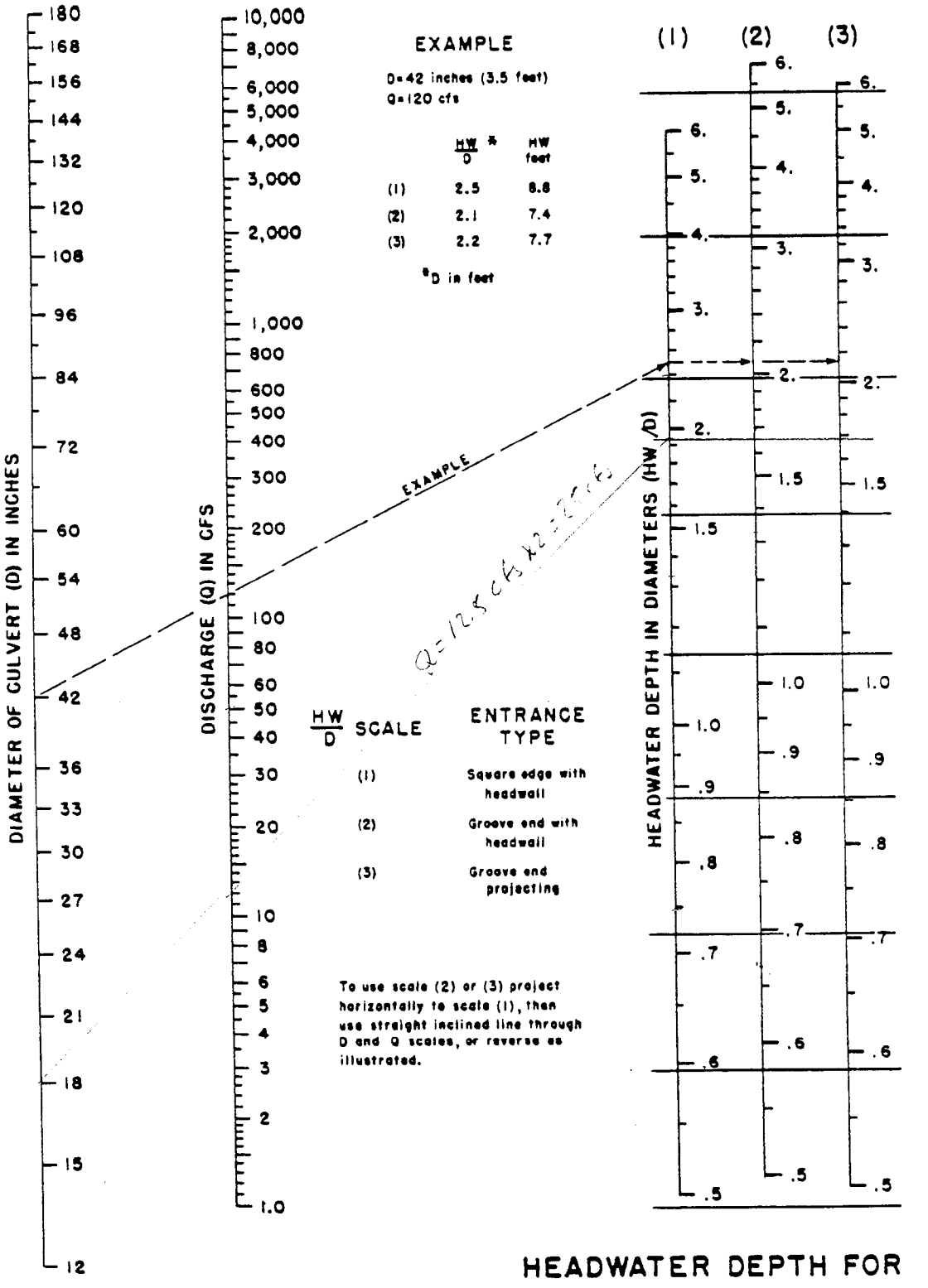
Application Version: 4.4.0

CHART 1



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2 & 3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963